the Lamp
An ExxonMobil publication

▶ Lubes for wind turbines

Bright future for Australia's Bass Strait

Eye on the future
biofuels from algae

PLUS

- Project startups
- Annual meeting
- Reasoning minds
- European anniversary

2009 – Number 3

Viewpoint

Taking technology for a test drive

Making transportation cleaner and more efficient is one of the most important aspects of the global energy challenge we face today.

Engineers and scientists have already made major strides in designing cleaner fuels and more efficient gasoline engines. Today's new car has 95 percent fewer emissions than one from 1970.

And new technologies hold potential for more progress.

To highlight current achievements and future possibilities, the Maryland Science Center in Baltimore recently opened an exhibit that showcases vehicle-efficiency technologies. It includes a full-scale car display where visitors can learn about the lightweight plastics, advanced tire liners and new motor oils that can make today's cars more efficient.

Visitors also can test out future technologies by driving an electric vehicle as part of the center's new AltCar program.

The program features a car – a *Maya 300* – that looks like a traditional vehicle, but runs on lithium-ion batteries, the kind that power cell phones and laptops. The car can be plugged into a standard electrical outlet, runs entirely on electricity and produces no vehicle emissions.

Both the exhibit and electric-car program are sponsored by ExxonMobil, in conjunction with the science center and Electrovaya, the maker of the *Maya 300*.

Why is ExxonMobil involved? Because meeting our energy challenges requires technology – in supplying more energy *and* in enabling us to use energy more efficiently.

Our lithium-ion battery separator film – now used in the *Maya 300* – is one such example. This high-tech film – no thicker than a human hair – helps lithium-ion batteries achieve the smaller size and larger capacity needed to power a car safely and affordably.

Even with this breakthrough, electric cars still face challenges in reaching widespread use. For example, their batteries generally need 10 times more capacity than those found in hybrids, making battery cost and performance two major hurdles.

All transportation technology improvements are essential to achieve greater energy efficiencies. Next-generation hybrids, for example, will benefit from advances in battery technology, including lithium-ion innovations like ExxonMobil's separator film. If just 10 percent of cars were hybrids, greenhouse gas reductions would be the equivalent of taking 5 million cars off the road.

Increasing energy efficiency is one of the best ways to meet our economic needs, enhance our energy security and reduce emissions. Advances in conventional vehicles, hybrids and electric cars can contribute to these goals with further technological development. As we make decisions about our energy future, it's important that consumers, businesses and governments factor in the power of efficiency technologies.

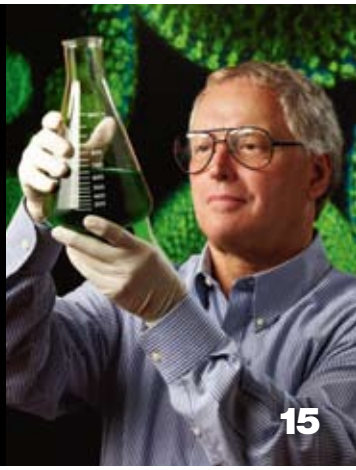
And as Baltimore's AltCar program shows, putting advanced technology behind the wheel is a good start to solving our energy challenges.

ExxonMobil

Taking on the world's toughest energy challenges.™

Eye on the future
Energy derived from algae might someday produce biofuels compatible with today's gasoline and diesel.

Cover photo by Keith Wood



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Upfront

In July, ExxonMobil and Synthetic Genomics Inc. announced a strategic long-term program to explore making biofuels from algae. While the challenges are many, the implications are compelling: the creation of next-generation biofuels to supplement the world's transportation fuel supply and help reduce future greenhouse gas emissions. The collaboration melds ExxonMobil's proven ability to "scale up" concepts with Synthetic Genomics' expertise in genomic research. This story starts on page 15.

A number of new or expanded projects are under way to bring additional supplies of energy to world markets: These include new drilling in the Gulf of Mexico that could more than triple gas production at the company's Hoover Diana platform (page 3); the startup of the Piceance Basin development in Colorado, where ExxonMobil is producing natural gas from within rock tighter than concrete (page 8); and offshore drilling and construction activity in Australia's Bass Strait (page 11).

Our management interview for this issue features a discussion with Vice President of Environmental Policy and Planning Sherri K. Stuewer on the climate change legislation currently under consideration in the U.S. Congress, and specifically ExxonMobil's preference for a well-designed revenue-neutral carbon tax as opposed to the cap-and-trade proposal. Read more on page 25.

Many readers might be surprised to know that *Mobil*-brand industrial lubes lubricate the majority of gear-driven wind turbines manufactured recently. In fact, *Mobil SHC* gear oils protect some 25,000 wind turbines worldwide, and the brand is the fastest-growing segment of the company's synthetic industrial lubes business (page 5).

Plus, other articles summarize this year's annual meeting, as well as the anniversary of the great Groningen gas field in the Netherlands. We hope you enjoy this issue of *The Lamp.*

Bob Davis
Editor

In this issue

Projects bring added production to mature Gulf of Mexico fields

The drillship *Ocean Valiant* (shown in distance) completed the Rockefeller well in water about a mile deep in three months to a total depth of more than 13,800 feet.

A new well 160 miles off the coast of Texas is expected to more than triple existing gas production at ExxonMobil's Hoover Diana platform.

During the past several years, the Gulf of Mexico has been an active place for ExxonMobil engineers, geoscientists, drillers and production personnel as they work to bring on new domestic oil and gas supplies at established offshore fields to meet ever-growing U.S. energy demand.

Programs conducted and planned include facility and well workovers at mature locations and the drilling of new wells using the latest technology to tap previously uneconomic undersea resources.

For example, about six miles from the company's Hoover Diana development south of Galveston Island in water depths approaching a mile, crews are nearing startup of a well that is expected to add 70 to 80 million cubic feet a day of new gas production to current daily volumes of almost 30 million cubic feet. The gas pockets are in a field called Rockefeller, one of several surrounding Hoover Diana, which started operating in 2000.

Discovered in 1995, Rockefeller was once considered too expensive to develop. But, with technology advancement and further evaluation that placed estimated recovery at 5.4 million barrels of oil-equivalent, along with a drilling plan that tied the new well into an existing subsea network to save millions in costs, the company decided to move forward with development in 2007.

Activity has progressed quickly ever since, with funding – at more than $100 million – occurring in 2008 and drilling operations beginning in early May and finishing in July of this year. Startup of the well is expected by the end of September, with ExxonMobil holding 100 percent equity interest.

The *Ocean Valiant*, with a crew of about 100, drilled the well, completing it nearly a month ahead of schedule.

"The drilling team leveraged the company's Fast Drill Process (FDP) to achieve a nearly 60 percent increase in feet-per-day drilling rates compared to other

Story by Bob Davis Photography by Keith Wood

ExxonMobil-operated deepwater wells in the Gulf of Mexico completed before FDP," says Andre Kostelnik, U.S. Production's operations superintendent for the Western Gulf of Mexico.

"Improved drilling rates and flawless execution enabled the well to be completed considerably below budget. This is a significant accomplishment for a deepwater well that extends horizontally nearly one mile, then penetrates vertically deeper to the gas reservoirs for a total depth exceeding 13,800 feet. Environmental impact was also minimized, both through reduced time on location due to improved performance, as well as the use of special dryers that remove fluid from drill cuttings, allowing for their safe disposal," Kostelnik says.

On the helideck of Hoover Diana, Wayne Jones and Mandi Winter discuss the upcoming drilling program that will occur at the platform, which involves the drilling of two more wells.

Significant investment

"Rockefeller is a significant investment for U.S. Production," says Mandi Winter, Rockefeller project manager. "We saved more than $10 million in project costs by drilling the well on the southeast corner of the Madison field, where we have existing production, and connecting the gathering line from Rockefeller into the Madison subsea template so the gas can be directed to Hoover Diana for processing and transmission to shore for domestic sales."

Winter adds that the project has an outstanding safety record, and is on schedule and on target to come in below budget. "Rockefeller is expected to provide a significant increase to ExxonMobil's Gulf of Mexico gas production during the next couple of years," she says.

Meanwhile, two more multi-million-dollar wells are about to be drilled from the deck of Hoover Diana, and activity this summer has been ramping up steadily on the huge structure, known as a deep draft caisson vessel or DDCV.

"We have installed additional crew quarters, as we expand the number of personnel from a normal contingent of about 40 workers up to a maximum of 120 when drilling begins in August," says Wayne Jones, senior field superintendent for U.S. Production. "Two wells are planned for the Hoover field that could add about 10,000 barrels a day of gross liquids when both wells start up early next year after an estimated five-month drilling and completions program."

Drilling operations will run in shifts 24 hours a day onboard the DDCV. Crews will work two weeks on and two weeks off, with full crew changes occurring typically by helicopter transport every other Thursday. But helicopters ferry supplies and specialized personnel just about every day to Hoover Diana from Galveston Island, approximately a two-hour trip by air over royal-blue water.

Bigger picture

Elsewhere in the Gulf, ExxonMobil employees and contractors are also working hard to bring new energy supplies online, acquire additional exploration acreage and work over existing wells to keep oil and gas flowing.

A new well is planned at the ExxonMobil-operated Mica field in the Mississippi Canyon offshore New Orleans, and the company has acquired new exploration leases in the Vermillion area of the Gulf, south of Louisiana. ExxonMobil is conducting active maintenance and workover programs throughout many of its established Gulf of Mexico operating areas to boost production or mitigate natural falloff of hydrocarbon production rates.

To learn more
exxonmobil.com/production

"In fact," says Gary Walz, operations manager for the Gulf of Mexico and inland Louisiana, who also manages workover programs in the United States, "some of our newest equipment, newest construction and most exciting technology applications are occurring in Gulf of Mexico fields ExxonMobil has operated for decades. It's all part of our continued plan to find and produce additional domestic supplies of oil and gas to meet the country's increasing energy needs." the**Lamp**

ExxonMobil lubes keep wind turbines turning

The *Mobil SHC* brand of wind-turbine lubricants is enabling the wind-energy industry to develop and operate in more efficient, cost-effective ways in a highly competitive marketplace.

An ExxonMobil product, *Mobilgear SHC XMP*, is the initial fill-gear oil of choice for seven of the top 12 wind-turbine builders worldwide.

Some might be surprised to know that the products that keep wind turbines running at peak performance represent the fastest-growing segment of ExxonMobil's *Mobil SHC* synthetic industrial lubes business. In fact, across the globe, *Mobil SHC* gear oils help prevent wear in an estimated 25,000 wind turbines. Roughly 60 percent of gear-driven wind turbines manufactured in recent years are lubricated with Mobil industrial lubes.

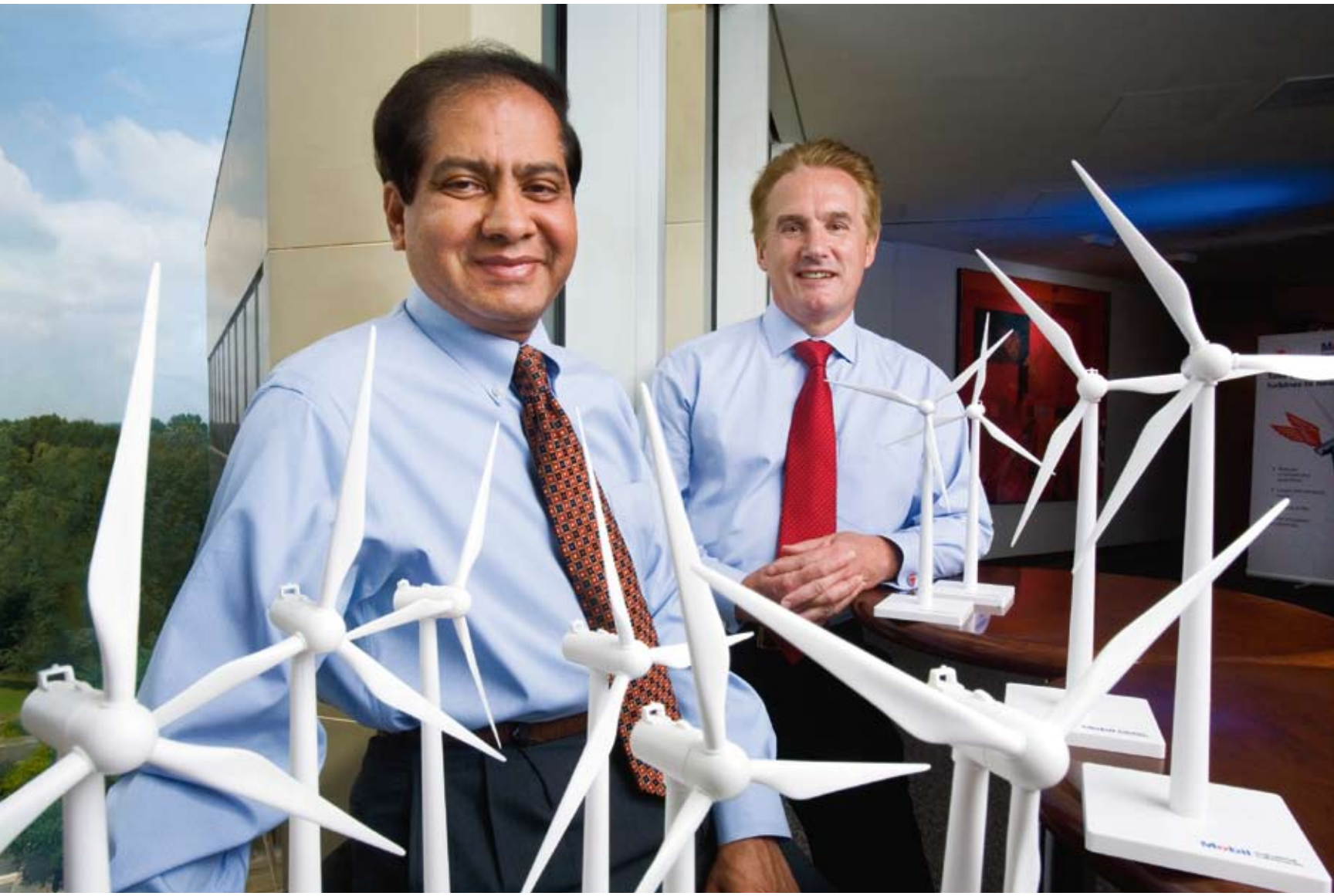
Although it starts from a small base relative to conventional sources, capacity for wind-generated electricity worldwide grew last year alone by nearly 30 percent to 122 gigawatts, comprising roughly 128,000 wind turbines.

New capacity additions for 2008 were more than 40 percent higher than in 2007, and wind-based electrical generation is expected to grow an estimated 12 percent a year, on average, from 2005 through 2030. Even with this high growth rate, wind-power generation is forecast to supply 1 percent of global energy demand and approximately 5 to 6 percent of electricity demand in 2030.

Wind-power generation began with the earliest wooden windmills, used to pump water long before electricity was even a notion. Early incarnations of today's towering, steel-and-fiberglass structures sprang up in earnest in the 1980s, and sites began proliferating in the mid-1990s. Europe has been at the forefront of the modern wind-power movement from the start, with countries such as Denmark and Spain well on the way to generating 20 percent of their electrical needs using wind power.

Many power providers and policymakers elsewhere in the world have also begun to view wind power as a potential renewable supplement to traditional energy sources. By the end of last year, the United States surpassed Germany as the world leader in wind-power capacity with 25 gigawatts – enough to generate 1 percent of total electricity nationwide. Other key growth markets include China, India and Portugal, with China alone earmarking more than

Story by Shelley Moore Christiansen Photography by Janice Rubin



Krish Krishnan (left) and Ian Davidson are among the specialized group of ExxonMobil professionals working with wind-turbine builders and component suppliers to formulate the *Mobil SHC*-brand of lubricants to fit customer needs.

$10 billion a year toward wind-energy initiatives through 2020.

"China's minister of energy refers to the country's wind patterns as a great strategic resource," says Ian Davidson, global industrial marketing manager for ExxonMobil Lubricants & Petroleum Specialties (L&PS).

Tough duty

ExxonMobil's pioneering synthetic-lubricant technologies have a long-standing reputation for serving the most demanding applications, and today's wind turbines are extremely demanding. The largest models, designed to feed energy to extensive power grids, have rotors up to 400 feet in diameter churning up to six megawatts of electricity – enough to power roughly 1,800 U.S. households. "In terms of weight, they're like jumbo jet planes sitting on stanchions in the sky," says Davidson.

Wind turbines of the 1980s used gear oils formulated with traditional hydrocarbon base-stocks. But by the mid-1990s, as the metallurgy of wind-turbine gearboxes evolved, traditional oils began to cause microscopic pits (micro-pitting), ultimately shortening the life of the equipment. ExxonMobil entered into a research and development collaboration with a major gearbox manufacturer to explore a synthetic solution to the problem.

The effort led to the 1998 introduction of *Mobilgear SHC XMP*, the company's first synthetic gear oil for wind turbines. Today, *Mobilgear SHC XMP* is the initial-fill gear oil of choice for seven of the world's top 12 wind-turbine builders. The Mobil wind-sector product line also includes greases to lubricate bearings and hydraulic oils that help pitch the huge rotor blades.

"By working closely with wind-turbine builders and their component suppliers through our engineering group, our research and development people gain an in-depth understanding of wind-turbine applications," says Krish Krishnan, industrial marketing advisor. "We use that understanding to develop optimum product formulations for each application. We don't design products first, and then try to fit them to these severe applications."

Exceptional performance

Besides protecting against micropitting and other forms of equipment wear, *Mobilgear SHC XMP* exceeds the performance of traditional oils by extending the interval between oil changes from 18 months to three years or more. *Mobilgear SHC XMP* doesn't clog filters and disable temperature and pressure gauges, as some other oils do. It also enables turbines to perform optimally in extreme ambient temperature conditions and maintains stability even in the presence of moisture condensation – common in humid climates.

A wind farm – or wind plant, as it's more often called today – may have dozens of turbines in remote areas. "It's not like a factory where individual pieces of equipment are readily accessible," says Krishnan. "Wind-turbine lubes therefore have more requirements than most other types of lubricants, and customers need to be very sure about the lubricants they're using."

For operators of wind plants, the reduction in routine maintenance, along with lower rates of equipment failure, can add up to significant cost savings per turbine per year. And maintenance is a major consideration, since there's no such thing as a "simple" oil change when a large turbine stands more than 300 to 400 feet high, perhaps in a remote environment or – as increasingly expected in coming years – offshore. Overall, *Mobil SHC* products enable the wind-energy sector to be more efficient, allowing it to better compete with other forms of energy.

Expertise and experience

ExxonMobil has centers of expertise dedicated to wind-sector lubes in North America, Europe and Asia Pacific. Together, they make up one of the lube industry's largest technical support organizations for wind-turbine builders, operators and service companies. ExxonMobil's wind specialists go beyond their technical call of duty, helping to enlighten customers on the outlook for wind-energy demand across the globe.

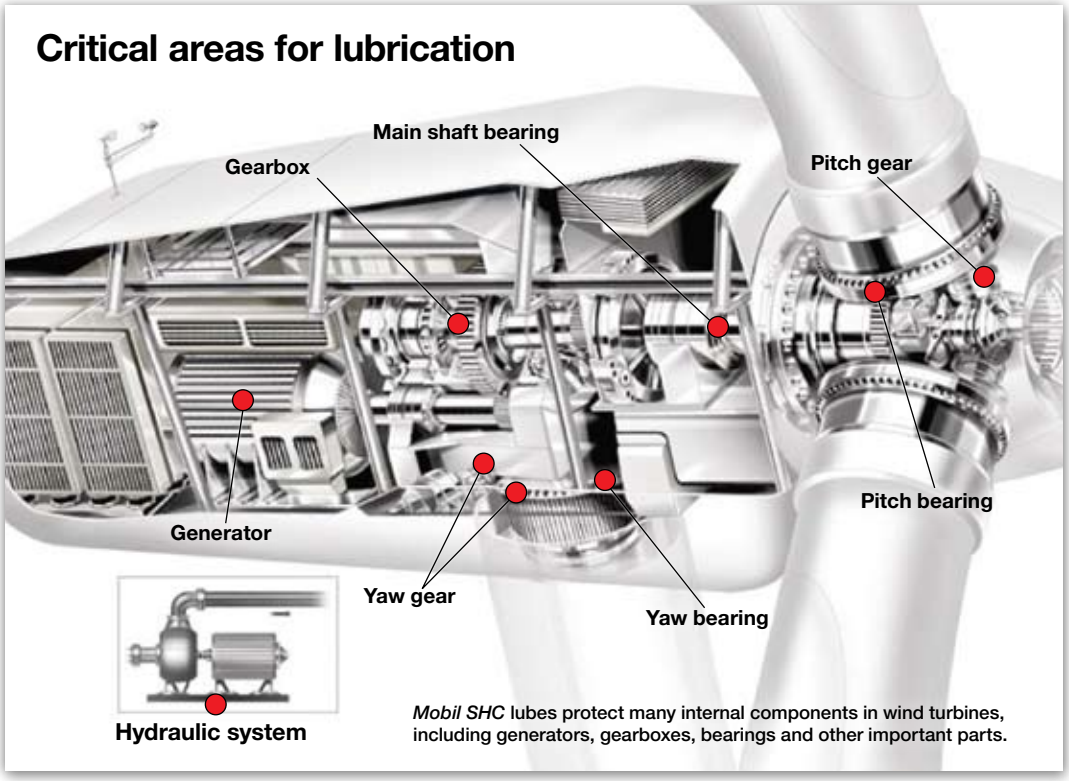
"We already operate in markets where turbine companies want to operate," Davidson says, citing a manufacturer in India exploring opportunities for entry into the U.S. market. "They can count on our expertise and experience."

ExxonMobil continues to invest in the development of next-generation wind-sector lubricants. "We're working with equipment builders to understand their new frontiers in order to extend our technology to an even higher level of leadership," says Davidson.

"It's vital that we develop all economic sources of energy to fuel the future growth of the world economy and the growing global population," says Alan Kelly, president of L&PS. "Those sources are going to include oil and gas, coal and nuclear, solar and wind. We're going to need them all." the**Lamp**

▶ To learn more
mobilindustrial.com/wind

Critical areas for lubrication



Mobil SHC lubes protect many internal components in wind turbines, including generators, gearboxes, bearings and other important parts.

▶ Editor's note:
Trend information and other data cited in this article are based on the following sources:

ExxonMobil *2008 Outlook for Energy*

American Wind Energy Association

BTM Consult ApS – *International Wind Energy Development 2008 World Market Update*

Global Wind Energy Council Web site

Production and pride in the Piceance Basin

A remote region of northwestern Colorado has become a showcase of ExxonMobil technologies driving down the cost of producing natural gas from complex reservoirs. And in the coming years, the Piceance Basin Unit will boost its production capacity, making this region one of the top producers of clean-burning natural gas in the United States.

The challenge of producing natural gas from the Piceance Basin (above) is that the hydrocarbons are trapped in rock tighter than concrete in hundreds of small reservoirs separated by layers of shale.

ExxonMobil operations in the Piceance Basin are actively pushing forward, with as many as seven drilling rigs working full time, the completion of new gas and liquids gathering systems, treating facilities, a pipeline and an aggressive hiring program being conducted to support the growing activity. The long-term goal is to build one of North America's significant new sources of domestic energy.

ExxonMobil's leases in the Piceance (pronounced PEE-awance) Basin hold an estimated 45 trillion cubic feet of recoverable natural gas, with current production of more than 100 million cubic feet a day.

"A project such as Piceance represents a long-term view of and commitment to energy development," says Rich Kruger, ExxonMobil Production Company president. "The key to unlocking the potential of this large, technically challenging resource is increasing production and recovery rates from each well at lower cost. ExxonMobil scientists and engineers are working hard to improve the enabling technologies and processes to do just that."

"The challenge of the Piceance Basin is that its natural gas is trapped within rock much tighter than concrete, and in hundreds of smaller reservoirs separated by thin layers of shale," says Marky Dewhirst, ExxonMobil geoscientist. "So for a well to be productive, it must reach the gas in multiple zones, and to recover this 'tight gas,' ExxonMobil is applying its proprietary technology and best practices."

This includes the company's revolutionary Fast Drill Process, which has increased drilling rates worldwide by more than 50 percent, and multi-zone stimulation technology with just-in-time

Story by Richard Cunningham Photography by Michael Kotlen

perforation (JITP) to access up to 50 gas-bearing zones in one well.

"These techniques were unheard of just a few years ago," says Jim Branch, ExxonMobil's Piceance project executive. "Each of our wells can recover gas from 20 acres, while others in the basin typically need one well for every 10 acres. The JITP process produces substantially more gas from the many zones it can tap from each well, so Piceance wells completed with our cutting-edge technology produce significantly more than conventionally fractured wells and at less cost."

Small footprints

To save time and minimize the project's environmental impact, nine to 10 wells are being drilled from each pad site. The derrick is on rails, so as soon as a well is complete, the rig can be moved over a few feet to begin the next one.

Far below the surface, the S-shaped wellbores fan out in all directions to reach their target zones. Drilling and completing batches of wells from one site not only saves time and money,

To reduce the project's environmental impact, nine to 10 wells are being drilled from each pad site.

Gas from ancient rivers

Satellite views of the Piceance Basin show an intricate network of ridges and valleys carved by rivers and streams exposing thick layers of sedimentary rock. Well below this rugged terrain lie thousands of feet of ancient sandstone rich with natural gas.

And to better understand the formation of this vast basin, geologists today study events that happened more than 100 million years ago when shifting plates of the earth's crust pushed up a mountainous region in the Western United States and created a depression across the middle of North America. Oceans advanced from the north and south into the depression to create an interior seaway connecting the Gulf of Mexico to the Arctic Ocean.

"About 70 million years ago, rivers flowing from the mountains deposited sediment in floodplain and coastal environments," says Marky Dewhirst, ExxonMobil geoscientist. "Along the lower reaches of these rivers, swamps and marshes formed where organic material accumulated. Progressive burial of each sedimentary layer led to increased pressure and temperature that eventually transformed the sediment into rock and some of the organic material into coal. As the coal deposits became more mature, this led to generation of the gas we are producing today."

Future phases of the Piceance project will boost its production capacity, making the region one of the top producers of clean-burning natural gas in the United States.

Piceance project aids schools

The Meeker School District will be able to expand facilities and add staff, equipment and professional training programs to deliver advanced math and science opportunities to students at its new Meeker Elementary School, thanks to two multi-year grants totaling nearly $600,000 from ExxonMobil.

A portion of the grants will provide funding to the Department of Mathematics and Computer Science at the Colorado School of Mines (CSM) to develop a collaboration to improve K-5 mathematics and science in the school district. As part of the program, elementary school faculty will attend summer workshops at CSM and receive online educational support and training throughout the academic year.

"ExxonMobil has made these grants to the Meeker School District and the Colorado School of Mines to help improve math and science education, a signature part of our community involvement program," says Jim Branch, Piceance project executive. "We strongly believe in investing in the communities in which we operate and that our employees call home."

but also increases project safety while cutting down on truck traffic to lessen impact on area roads. It further reduces the "project footprint" with fewer pad locations and associated field roads and pipeline right of ways.

Approximately 10 percent of ExxonMobil's acreage is being developed under the first phase of the project, and hundreds of additional planned wells and several new pipelines are expected to bring this portion of the Piceance development to full capacity during the next few years. Future developments could increase natural gas production to a peak of 1 billion cubic feet a day, a nearly tenfold increase over current output.

Water conservation is a priority at the project. ExxonMobil developed a system that reuses the water recovered from production for other processes. This reduces fresh water use, a priority in this relatively dry region, by about 80 percent.

In addition, ExxonMobil conducts extensive plant, wildlife and archaeological surveys to help manage the environmental performance of the Piceance Basin operations. The company also participates in studies with local educational institutions and government agencies to maximize protection of native wildlife habitats and plant species in the project development area.

"With natural gas expected to be the fastest-growing major fuel source, driven largely by its increased use to generate electricity," says Kruger, "ExxonMobil is committed to developing this resource efficiently and with environmental care and sensitivity." theLamp

To learn more
exxonmobil.com/piceance

Bass Strait: long history, bright future

Since 1969, ExxonMobil's offshore Australia operations have produced more than 60 percent of that nation's oil and 30 percent of its natural gas. And there's more on the way.

This year marks the 40th anniversary of ExxonMobil's offshore oil and gas production in Australia's Bass Strait. During those years, nearly 4 billion barrels of oil and 7 trillion cubic feet of natural gas have been produced, transported ashore, processed and delivered to customers throughout much of the continent.

According to a study by the research firm Econtech, in producing nearly two-thirds of Australia's cumulative oil production and approximately one-third of its natural gas production, these operations have created some 50,000 jobs, contributed about $1.7 billion a year to the country's gross domestic product and generated $235 billion in federal government revenues (in 2006 dollars).

"We're proud of our long-term contribution to the nation's energy supply," says John Dashwood, ExxonMobil's lead country manager in Australia. "And because sea conditions in Bass Strait are so challenging, we're especially proud that we've operated there in a safe and environmentally sound manner for all these years."

Bass Strait is a 150-mile-wide channel at the southeast corner of Australia. The strait separates the state of Victoria and the island state of Tasmania, and is renowned among mariners for strong currents, roaring winds and raging seas. Shipwrecks were a common occurrence during the 18th and early 19th centuries.

In 1964, Esso Exploration Australia Inc. and Australia's Broken Hill Proprietary Company Limited (today BHP Billiton) formed a 50-50 joint venture, with ExxonMobil as operator, to explore for oil and gas in Bass Strait. The first wildcat well was spudded late that year in the Gippsland Basin, and weeks later the partners announced the discovery of natural gas. Additional discoveries of gas, and then oil, soon followed, transforming Australia's oil supply situation from one of almost complete dependence on imports to one of substantial self-sufficiency.

Technology drives success

Operating in Bass Strait's rough seas has always presented challenges to ExxonMobil engineers. From the initial startup in 1969, the next 20 years involved rapidly ramping up production from world-class oil fields Halibut and

Esso archive photo

The steel jacket for the Barracouta platform was towed to the offshore field in the Bass Strait in 1967.

Story by Thomas L. Torget Photography by John Krutop

Drilling Engineer Tim Woods,
onboard the Snapper platform.

Kingfish, and major gas fields Barracouta and Marlin. Then came development of smaller fields such as Cobia, Tuna and Flounder, followed by development of even smaller fields Bream, Perch and Dolphin. Today, ExxonMobil's Bass Strait operations comprise 362 operating wells and 21 platforms and offshore installations, producing about 120,000 barrels of liquids and more than 700 million cubic feet of natural gas a day.

"Bringing those smaller fields into production in a cost-effective manner was especially challenging," notes Dashwood. "Our engineers took advantage of ExxonMobil technologies to design smaller platforms that could be built at relatively lower cost and still could safely withstand the harsh Bass Strait environment." These technologies – which included remote-operated facilities, gravity-based platforms and subsea well completions – enabled the company to produce more oil and gas at lower cost.

"Our engineers worked with our counterparts in America to apply technologies that allow Bass Strait platforms to withstand 75-foot waves without damage, making them safer and able to continue operating in severe weather," explains Geoff Humphreys, operations technical and surface manager. "Statistically, a 75-foot wave occurs here just once every 100 years."

The longest extended-reach well in Bass Strait history, drilled to approximately 21,200 feet, was recently completed from the Snapper platform to nearby Moonfish field.

New oil and gas projects continue with the combined $2.1 billion Kipper/Tuna and Turrum projects, expected to begin production in 2011. The Kipper field will be developed by the installation of a number of subsea wells, tied back to West Tuna Platform (pictured) and piped to existing infrastructure onshore.

Global expertise is ExxonMobil strength

Humphreys notes that such a collaborative effort is commonplace within ExxonMobil. "Worldwide, we have about 14,000 engineers and scientists, and about 1,400 of them have doctoral degrees," he says. "That's a tremendous resource of expertise that all ExxonMobil affiliates can call upon."

For example, as Bass Strait production matured, many wells began producing increasing volumes of water along with the oil. Company engineers met this challenge by developing "hydrocyclone technology" that removes residual oil from formation water after it comes out of the primary separators. Hydrocyclone technology – using high centrifugal forces in a vortex – is used today throughout the industry.

In addition, ExxonMobil drilling teams used collaborative expertise along with cutting-edge drilling and completion technology to achieve outstanding results in the Bass Strait.

In 1979 and 1980, the company drilled two world-record wells. The first took 170 days and reached a depth of 17,000 feet. The second spanned 138 days and reached 18,000 feet. A few years later, ExxonMobil drilled a 16,000-foot well in just 54 days.

In 2005, the Bass Strait drilling team was among the first to use ExxonMobil's proprietary Fast Drill Process, which further lowered drilling time and costs. In 2008, the Australia team used ExxonMobil's enhanced suite of proprietary technologies to drill the longest and most complex well in the history of the Bass Strait to a total depth of around 21,200 feet in less than 32 days.

"These same ExxonMobil technologies, applied by a talented team to Bass Strait drilling programs, continue to deliver industry-leading results as we relentlessly pursue safe and environmentally sound drilling operations," says Harry Longwell III, ExxonMobil's field drilling manager in Australia.

Longford is receiving point

Bass Strait production comes ashore via a network of 325 miles of underwater pipelines that lead to the Longford Plant in Gippsland, Victoria. The complex includes three natural gas processing plants and a crude oil stabilization plant. Longford has supplied most of Victoria's natural gas since 1969. It also furnishes gas to the states of New South Wales, South Australia, Tasmania and the Australian Capital Territory.

From Longford, the oil and gas liquids move by two 135-mile pipelines to Long Island Point. There, the oil is distributed to refineries and the liquids are processed into liquefied petroleum gas and ethane for sale to customers.

More production on the way

Bass Strait production will increase substantially beginning in 2011 when the Kipper/Tuna and Turrum projects, with a combined investment of more than $2 billion, come online. ExxonMobil is operator and holds a 32.5 percent interest in the Kipper resource and 50 percent interest each in the Tuna and Turrum prospects.

The combined Kipper/Tuna resource holds some 620 billion cubic feet of recoverable natural gas and 30 million barrels of gas liquids. It will be developed by installing subsea wells, and production will be piped to Longford. Fabrication began in 2008, and production is expected to begin in 2011.

The Turrum field holds about 1 trillion cubic feet of natural gas and 110 million barrels of oil and gas liquids. Development involves constructing a new platform that will be bridge-linked to an existing platform. The expanded structure will process additional oil and gas, which will be piped to the Longford Plant. Construction began this year, with production also scheduled to begin in 2011.

▶ To learn more
exxonmobil.com
.au/bassstrait

With the Kipper/Tuna and Turrum fields coming online in two years, the future remains bright for Bass Strait operations. These new projects combined will provide enough energy to power a city of a million people for at least 35 years. And the company's ongoing exploration, drilling and evaluation programs continue to increase production from existing fields.

"So even after 40 years of production, Bass Strait still has a long life because we continue to invest in future energy supplies," says John Dashwood. "ExxonMobil will be producing oil and gas for Australians for many more decades." the**Lamp**


1000 mL
PYREX
500 mL
KIMAX
KIMBLE
APPROX. VOLUMES
400
300
200
100
500 mL
KIMAX
KIMBLE

From pond to pump?

ExxonMobil joins forces with a leader in biotech research to develop the raw material for transportation fuels from an unlikely source.

An algae-covered pond may not be one of nature's most pleasing sights. But to scientists, it offers a tantalizing vision of the future for fuels made from renewable sources.

In its continuing search for new and diverse technologies to help meet the world's growing energy demand, ExxonMobil has undertaken an innovative corporate research and development initiative to create a next-generation biofuel. If successfully developed, this algae-derived biofuel could be used to manufacture a wide range of fuels that meet the same specifications as today's products, thus adding to current supplies.

ExxonMobil will be collaborating with Synthetic Genomics Inc. (SGI), a prominent biotechnology company focused on developing genomic-driven products, to explore algae as a commercially viable alternative to crude oil for making gasoline and other transportation fuels.

If the companies achieve certain research and development milestones, the R&D cost could total more than $600 million.

Dave Marler (left) and Jeff Beck say that the collaboration between ExxonMobil and Synthetic Genomics Inc. to explore developing biofuels from algae is a powerful one.

"Meeting the world's energy needs will require a broad mix of energy sources," says Emil Jacobs, ExxonMobil Research and Engineering Company (EMRE) vice president of research and development. "We believe that biofuels from photosynthetic algae could make a meaningful contribution because of their potential to be an economically viable, low-emissions transportation fuel."

"The best of the best"

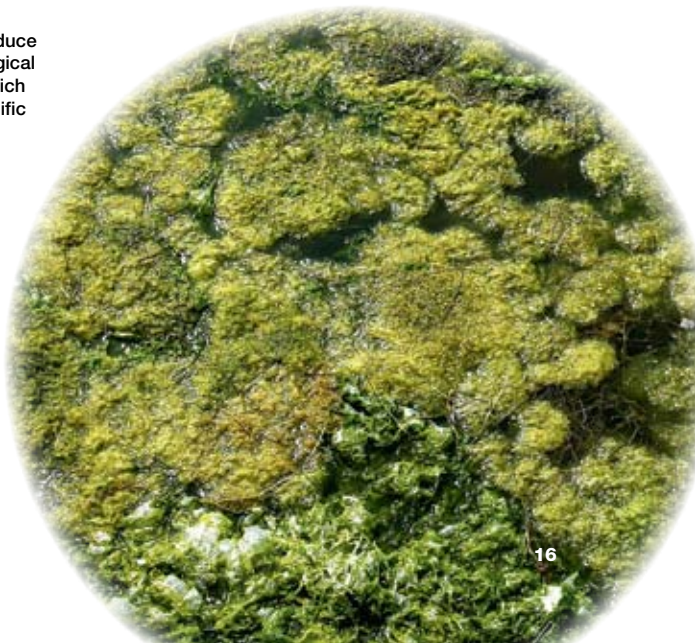
The project brings together SGI's high level of expertise in biology, specifically all aspects of genomic research, and ExxonMobil's engineering and technical know-how, coupled with the company's proven ability to "scale up" a concept to commercial status.

"ExxonMobil has the expertise in going from concept to commercial application," says Jeff Beck, EMRE's corporate strategic research manager. "SGI brings the same command of genomics that we bring to refining. If you're trying to break into this field, you need the best of the best, and that's what this collaboration represents."

Certain strains of algae naturally produce hydrocarbon oils, according to Dave Marler, biofuels program manager at EMRE's corporate strategic research lab.

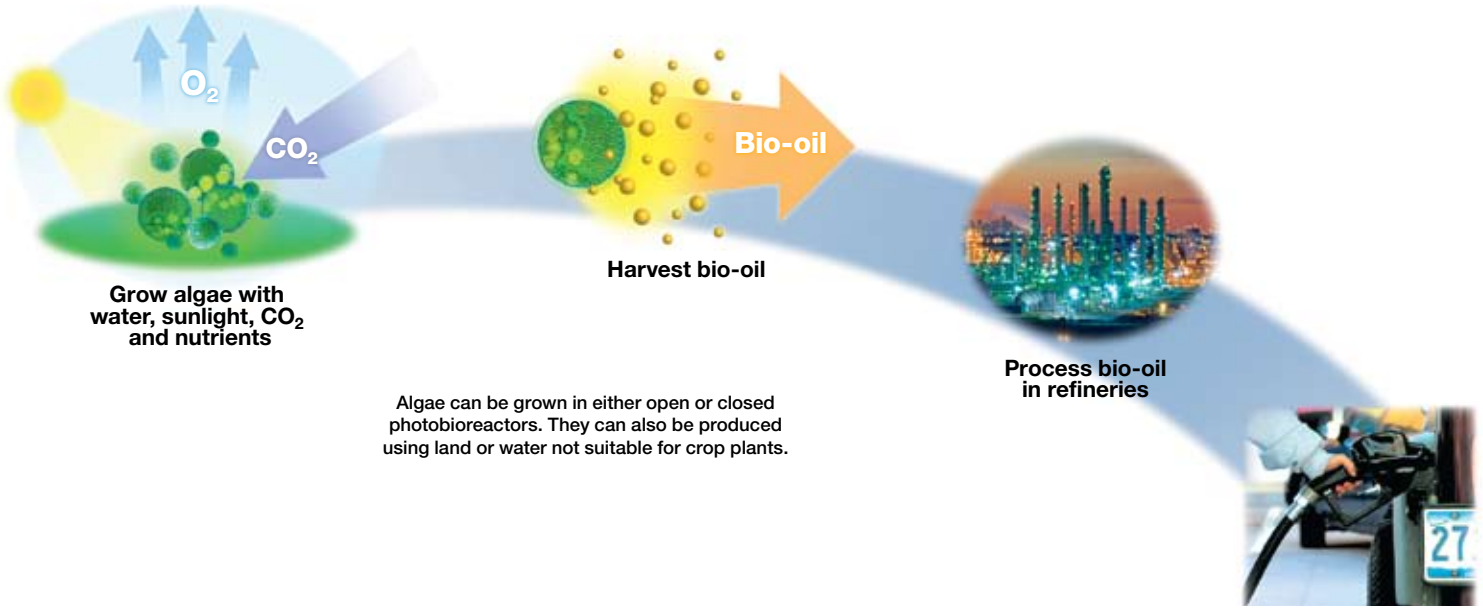
"Different types of algae make different kinds of oils," says Marler. "Similar types of molecules that exist in crude oil are produced by algae, but in different combinations. The biological challenge is to identify the strain of algae that is most prolific at producing the

Certain strains of algae produce hydrocarbon oils. The biological challenge is determining which types of algae are most prolific at doing this.



Story by Bill Corporon Photography by Keith Wood

Producing biofuel from algae



Algae can be grown in either open or closed photobioreactors. They can also be produced using land or water not suitable for crop plants.

ExxonMobil's Dave Marler examines samples of algae, which can yield more than 2,000 gallons of fuel per acre per year.

desired bio-oil. That's why the front-end work will be focused on research at SGI. They'll be searching for the right algae strain and determining how to maximize hydrocarbon production."

Challenges and benefits

The production of fuel from algae presents other significant challenges. For example, getting algae fuel from the lab to the local gas station will be a tremendous undertaking – one that could require decades of work by experts in engineering, chemistry, biology and a host of other scientific fields. And what's not known is whether affordable, large-scale quantities of algae fuel can be made.

"We need to focus on developing a fuel that can be used within the current supply system and with the existing vehicle fleet," says Beck. "We have to consider alternatives that fit within the available processing and transportation infrastructure. Biofuel manufactured from algae-based bio-oils contains similar molecules as gasoline and diesel, so we can use them in the same infrastructure we use today – something we can't do as easily with many other sources of alternative energy."

But algae-based fuels also offer major benefits. Unlike other biofuels, hydrocarbons from algae can be produced using land and water unsuitable for crop plant or food production. Corn and sugar cane, for example, are increasingly employed to make fuel, but their use has an impact on their availability as food. Algae production does not require the use of farmable land.

Since growing algae feed on carbon dioxide, algae production can help reduce greenhouse gas emissions. "Algae don't emit carbon dioxide," says Beck. "They consume it. And they would need a lot of it for commercial production."

Large-scale algae production sites, for example, could use carbon dioxide from nearby power

ExxonMobil Research and Engineering Company's (from left) Dave Marler, Emil Jacobs and Jeff Beck will work closely with their counterparts at SGI on the breakthrough research that will involve studies in engineering, chemistry, biology and other scientific fields.

"Algae don't emit carbon dioxide; they consume it. And they would need a lot of it for commercial production."

Jeff Beck
EMRE corporate strategic research manager

or manufacturing plants that generate large amounts of the gas. A production site could act as its own carbon capture and conversion project, in addition to producing algae-based fuel.

Algae also produce hydrocarbons at much higher rates than other plants. Currently, algae can yield more than 2,000 gallons of fuel per acre per year, compared with 50 gallons for soy oil and 650 for palm oil.

Another benefit is their productivity. Algae can be grown year-round in special man-made ponds or enclosed photobioreactors exposed to abundant sunlight. Harvesting algae is a continuous process throughout the year, compared with production of plants such as corn, which are typically harvested once annually and stored for later use.

The ingredients for making algae are relatively basic: sunlight, water, carbon dioxide and some nutrients. Since algae production does not require fresh water, it can thrive in brackish or salt water. Even treated waste water can be used, as the water itself acts a nutrient to foster algae growth.

"Algae are prolific," says Marler. "You can produce large quantities per acre of land – as much as three times greater than other biofuel sources. That means you use less land and less energy per volume of biofuel produced."

Looking forward

Jeff Beck agrees that the search for viable fuels from algae is still in its infancy.

"We're just getting started," he says, "and plenty of unknowns lie ahead. We need a solution that combines innovations in biology, process chemistry and engineering. This effort takes companies with diverse backgrounds and leadership positions in their respective fields working together.

▶ To learn more
exxonmobil.com/algae

"In the end," says Beck, "the joint effort between ExxonMobil and Synthetic Genomics presents a promising opportunity to break new ground in helping to meet the world's energy demand." the**Lamp**

Fifty years of teamwork, technology and a long-term view

At a June conference marking the 50th anniversary of the Netherlands' Groningen natural gas field, ExxonMobil Chairman and CEO Rex W. Tillerson described how lessons learned in developing Groningen can guide future energy development, while reducing greenhouse gas emissions.

Queen Beatrix of the Netherlands and ExxonMobil Chairman and CEO Rex W. Tillerson meet at the 50th anniversary of the discovery of the Groningen natural gas field.

Chairman Tillerson began his speech by noting that the Groningen natural gas field is not only continental Europe's largest, but also one of the greatest energy discoveries in history. Its development, which Tillerson termed the result of teamwork, technology and long-term thinking, provides invaluable lessons on how ExxonMobil takes on current and future energy challenges. "The Groningen field has been an extraordinary proving ground for the technical skill, innovative ideas and inspiring vision that have helped shape the energy industry as we know it today," he said.

Initial traces of natural gas were detected in 1955, and exploratory drilling began in 1959. As each of several wells that were miles apart encountered gas, it became clear that they all tapped a single, enormous resource. "So even at the dawn of its development," said Tillerson, "the Groningen field offered our industry a lesson: Never underestimate the extent of the world's energy endowment."

The surprising discovery by the Esso-Shell venture was somewhat disappointing because the wells did not strike oil. A half-century ago, natural gas in Europe was viewed as having little commercial value because the continent was so reliant on coal. "Many did not see a future

 Story by Thomas L. Torget Photos courtesy of Nederlandse Aardolie Maatschappij

for gas because they saw a future that would be dominated by nuclear power," said Tillerson. "Fortunately, creative and enterprising minds saw more."

One of those enterprising minds was that of Douglass Stewart of Esso. Stewart understood from the United States' experience that gas could be used to supply households as well as industry. His long-term vision was adopted, and the partnership began to commercialize the resource for both industrial and consumer use.

Tillerson said that such bold vision provides the second lesson of Groningen's development: Innovative thinking can help turn a seemingly disappointing energy discovery into an extraordinary success.

Supportive government

Farsighted government policies were a key factor in Groningen's success, said Tillerson. Bringing the resource to market required building vast new infrastructure and educating the public about the benefits of natural gas. "At that time, natural gas was so novel that the government and industry had to explain that it was cleaner than coal," he said. By the end of the 1960s, less than a decade after its discovery, Groningen gas flowed into almost every Dutch home.

Tillerson praised the Dutch government for allowing the Groningen field to serve as a resource for industry not just in the Netherlands, but also in France, Belgium and Germany. "This reaffirmed the Dutch government's commitment to free trade and investment decades before the formation of the European internal market we all take for granted today," he said. "Such policies are a reminder that our world is strengthened by energy diversity. And the best way to increase energy security is to expand global energy supplies and allow free markets to find the most efficient use of those resources."

A third lesson learned from development of Groningen, said Tillerson, is that energy production and environmental protection are not incompatible. "We can achieve both, as our experience here shows," he said. As an example, he cited Groningen's 250 miles of pipeline placed underground to minimize the impact on potato and sugar beet fields above.

Importance of technology

Tillerson emphasized that Groningen's success would not have been possible without harnessing the power of technology and human ingenuity. "Here, too, is a lesson," he said. "In the decades ahead, technology will play an increasingly important role as we work together to ensure that the Groningen field can continue to supply energy to the people of the Netherlands and Europe for the next 50 years – and beyond."

The chairman explained that despite the current global economic downturn, energy demand will continue to grow. "By the year 2030, we expect global energy demand to be about 30 percent higher than it is today," he said.

As energy demand grows, Tillerson said, we are likely to see an increase in greenhouse gas emissions associated with energy use. "Our best hope for increasing efficiency and reducing emissions is to push forward with teamwork and technology," he said.

A recent example of such teamwork and technology is ExxonMobil's newest cogeneration plant at the company's Antwerp refinery. The plant generates 125 megawatts of power, which is equivalent to the electricity produced by 230 wind turbines. The new plant will reduce Belgium's carbon-dioxide emissions by an amount equal to removing 90,000 cars from Europe's roadways.

Participation is key

Chairman Tillerson concluded his speech by stressing that every sector of society needs to be part of meeting the world's energy challenges – from consumers and businesses to governments around the world. He said that successful energy projects require long-term thinking, long-term discipline and long-term commitment. "Thus, we need public policies that encourage free trade, free exchange, stable tax policies and the rule of law," he said. "With sound, stable and sensible policies, we can expand and diversify the world's energy supplies, unlock promising new technologies and meet the challenges of providing more energy, while we reduce the growth of greenhouse gas emissions." theLamp

The Groningen anniversary celebration took place at the Fraeylemaborg in Slochteren, a former home for Dutch nobility that dates back to the Middle Ages.

Groningen at a glance

- Continental Europe's largest gas field
- Discovered in 1959, first production in 1963
- Developed by ExxonMobil-Royal Dutch Shell partnership known as Nederlandse Aardolie Maatschappij, or NAM
- Serves customers in the Netherlands, France, Belgium and Germany
- Production to date: More than 100 trillion cubic feet of gas

To learn more
exxonmobil.com/groningen

Teaching math, one student at a time

With significant backing from ExxonMobil, a new math instruction program provides a learning experience tailor-made for each student. It's another step toward meeting the nation's pressing need for greater proficiency in math and science.

Although using computers as teaching tools isn't new, the ways in which students are learning from them are. ExxonMobil is a major supporter of a cutting-edge program called Reasoning Mind, and it's changing the way math is taught.

"Reasoning Mind is an exciting, innovative Web-based program designed to improve the way teachers teach and students learn," says Gerald McElvy, president of ExxonMobil Foundation. "It's a 21st century approach to math education."

The program is aimed at grades two through six. It's currently used by 5,000 students in 75 schools in five states – California, Florida, Louisiana, Missouri and Texas. Plans call for expanding to additional states and for making the program available to 100,000 students in 1,000 schools over the next four years.

Meeting individual needs

The Reasoning Mind software program presents a student with a problem representing a certain math concept. If the student solves it, he or she is presented with similar problems until mastery of the concept is attained. The student then moves on to a more challenging level.

When a student has difficulty, the program goes back to a review of the material and further testing.

The "Reasoning Mind Genie," a cartoon-like character, interacts with the student in presenting the problem, checking the answer and providing encouragement. The Genie is, in effect, the student's private tutor, customized to individual needs and levels of proficiency.

"Reasoning Mind also transforms the role of the teacher," says McElvy. "The classroom does not have to move at a single pace. Teachers can work with students one-on-one. Children who need more help from the teacher can get it without holding back the rest of the class. Gifted students can work independently beyond their grade level."

Students can use the program outside regular school hours – during break time, at lunch, after school and at home.

In addition, parents can purchase an annual subscription to Reasoning Mind. This benefits both home-schooled children and regular-school students who want to polish their skills.

Teachers report that the program is so popular that students frequently ask for more homework.

Growth of an idea

Reasoning Mind was co-founded by Alex and Julia Khachatryan, who immigrated to the United States in 1989 from the former Soviet Union. They were inspired by personal experience to create the organization.

Alex Khachatryan, CEO of Reasoning Mind, holds a doctorate in physics and mathematics, and his wife, vice president, is a petroleum engineer. They became interested in math education as a result of concerns about the quality of instruction received by their son.

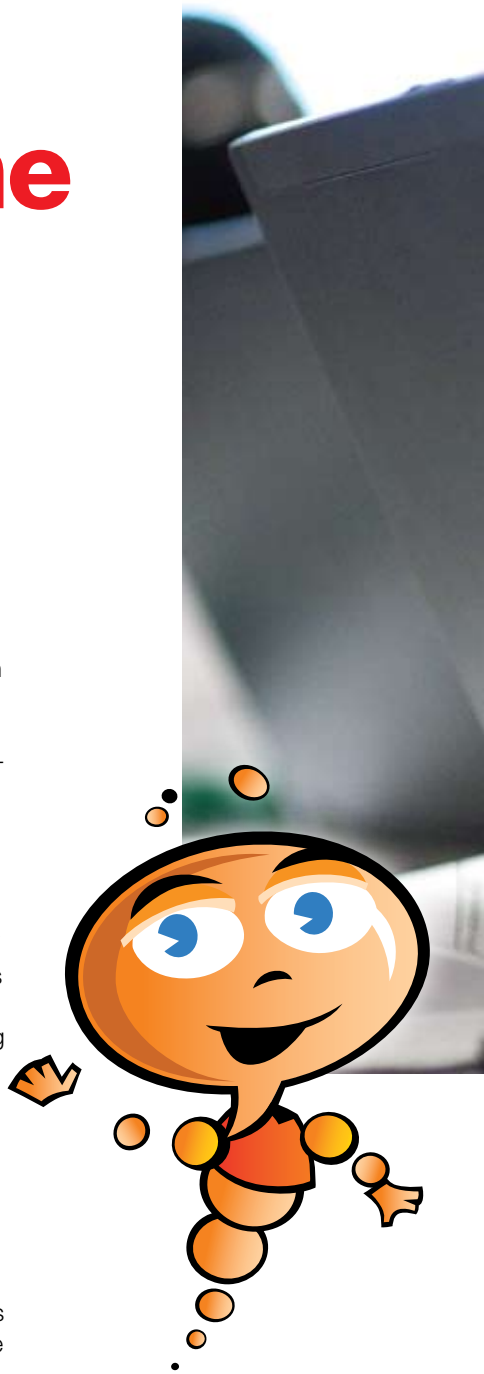
"We wanted to provide our son with the highest level of education," he says, "but we were frustrated as we looked at the educational system through his eyes."

The program that eventually became Reasoning Mind was initially designed for gifted students. As it evolved, Khachatryan saw its utility for children at all levels of ability, and today the curriculum is world-class, comparable to math programs used in high-performing countries around the world.

"We want to challenge upper-level students while helping bring up those who are less proficient," he says. "We designed Reasoning Mind to stimulate and engage students with that goal in mind."

Khachatryan says ExxonMobil's assistance has been critical to the program's success.

"ExxonMobil's support is huge," he says. "They're the largest donor, but their participation goes beyond the financial since they serve on the board and leadership team of Reasoning Mind, and provide employee volunteers. They've also helped get the word out about the program, and they've made it possible for us to partner with other organizations and companies around the country."



Above: Helping the students with their math problems, checking their answers and giving support is the "Reasoning Mind Genie," a private animated tutor customized for a child's individual needs and skills.

Above right: Kory Patterson, a student at Bastian Elementary School in Houston, gets into a math problem using the Reasoning Mind tutorial.

Photo by David Hill

Measuring results

In Houston, Reasoning Mind has helped students make impressive gains in scores on the Texas Assessment of Knowledge and Skills, or TAKS, which is given to primary and secondary school students.

For example, on the math section of the 2009 TAKS, fifth-graders at the city's John Cornelius Elementary School performed at virtually the same level their peers in the Highland Park school district did in 2008. Highland Park is a top-rated school district near Dallas.

One hundred percent of the fifth-graders at Cornelius and in Highland Park passed the math section. Seventy-eight percent of Highland Park students earned "commended" status, compared with 74 percent at Cornelius.

Cornelius and Highland Park serve very different student populations. Cornelius students are 98 percent minority and 86 percent "economically disadvantaged." Highland Park is composed of 3 percent minority students. None are economically disadvantaged.

Texas Governor Rick Perry lauded the accomplishments of the Cornelius students during a recent visit to the school, calling the Reasoning Mind program a "game changer" and "a great tool if we are to stay competitive in the world."

Support on many fronts

Reasoning Mind is just one of many programs supported by ExxonMobil to improve math and science education. Some other examples:

- ExxonMobil has been a founding sponsor of the National Math and Science Initiative (NMSI) since 2007 and committed $125 million to support its programs.

- With Dr. Bernard Harris, a former astronaut, ExxonMobil sponsors the Bernard Harris Summer Science Camps at college campuses. The program targets students in urban school districts. It consists of free, two-week residential camps focusing on math, science, technology and engineering.

- In partnership with professional golfer Phil Mickelson and his wife, Amy, the company sponsors the Mickelson ExxonMobil Teachers Academies. The Academies help third- through fifth-grade teachers learn how to motivate students to pursue careers in math and science.

"No company has made anything like ExxonMobil's commitment to math and science education," says Dr. Larry Faulkner, president of the Houston Endowment, chairman of the National Math Panel and a member of ExxonMobil's board of directors. "I'm very proud of what's being done to address an issue so critical to this nation's future." theLamp

To learn more
www.reasoningmind.org

Strength and strategy benefit shareholders

At the ExxonMobil annual meeting in May, Chairman and CEO Rex W. Tillerson emphasized that the corporation's financial strength and long-term investment strategy continue to provide shareholders with superior value.

In his address at the Morton H. Meyerson Symphony Center in Dallas, Mr. Tillerson cited the company's record-setting performance in 2008 as benefiting millions of people who hold ExxonMobil shares either directly or indirectly through their pension, insurance and mutual funds. The corporation's dividends and share-buyback programs have distributed nearly $150 billion during the past five years to millions of ExxonMobil shareholders.

Tillerson also noted that to deliver energy to fuel global economic growth while protecting the environment, the world can't rely on a single solution.

"For now and the foreseeable future, an integrated set of solutions is required," Tillerson said. "Those solutions range from producing hydrocarbons more effectively, to using them more efficiently, to improving existing alternatives and developing policies that encourage long-term planning and investments. Despite the volatile economic times, ExxonMobil remains committed to investing in integrated solutions to the energy challenge."

Notable accomplishments

Tillerson cited a number of ExxonMobil's recent achievements and plans for the future, including:

- An industry-leading return on capital investment of 34 percent for 2008, significantly higher than ExxonMobil's nearest competitor.
- Annual investment of $25 billion to $30 billion for capital and exploration projects over the next five years, including a record $29 billion in 2009.
- The startup of eight major projects in 2008, adding a net equivalent of 260,000 barrels a day to the company's production at peak performance.
- A 2008 replacement of more than 100 percent of the company's production – the 15th consecutive year this has been achieved – through the addition of proven reserves.
- Continued growth of exploration acreage, which has increased by more than 40 percent since 2003.

Story by Kevin Gault Photography by Jim Reish

Above: About 450 shareholders attended this year's annual meeting, held in Dallas.

Right: Chairman Tillerson greets shareholders prior to the start of the session.

To offset the normal depletion of oil fields, ExxonMobil will add new capacity of about 1.5 million oil-equivalent barrels a day through new projects between 2008 and 2015. This additional capacity equals nearly 40 percent of current production.

In all, ExxonMobil's industry-leading portfolio of more than 100 development projects represents 24 billion oil-equivalent barrels of proved reserves. These new endeavors, coupled with the company's financial strength, provide superior value for shareholders as ExxonMobil strives to meet the world's growing need for energy and to safeguard our environment.

Ongoing investments

"ExxonMobil is strong, resilient and well-positioned for the future, with plans to invest a total of $125 billion to $150 billion in new energy projects over the next five years alone," Tillerson said. "Our commitment to developing advanced technology, our industry-leading operational and project-management capabilities, and our exceptional employees continue to position the company as the world leader in the petroleum industry and a partner of choice for resource owners around the world."

The three-and-a-half-hour meeting, attended by 450 shareholders, included remarks by ExxonMobil Vice President of Investor Relations and Corporate Secretary David S. Rosenthal, the election of directors, and 11 proposals from shareholders. A press conference concluded the event. theLamp

The advantages of a revenue-neutral

An interview with Sherri K. Stuewer, ExxonMobil vice president of Environmental Policy and Planning

The climate change legislation the United States Congress is currently considering has generated a lot of public debate – and some misconceptions about ExxonMobil's position on the issue. Can you help clarify where the corporation stands on the issue of climate change?

ExxonMobil believes that the risks posed by rising greenhouse gas emissions to society and ecosystems are serious enough to warrant action – by individuals, by businesses and by governments. We believe that the broad objective of climate change policy should be to reduce the risk of serious impacts on society and the environment, while considering the importance of energy to global economic development.

ExxonMobil's support for thoughtful research and analysis on climate issues is long-standing. Our scientists have published more than 40 papers on climate science and technology in the peer-reviewed literature, and regularly participate in national and international expert panels, including the Intergovernmental Panel on Climate Change.

We are also actively working on technologies to reduce emissions from our own operations and from our customers' use of our products. Most recently, we announced a large new research program to investigate the production of liquid fuels from algae (see page 15). In addition, we provide support for fundamental science research on new low-emission energy technologies at numerous universities, including our $100 million pledge to the Global Climate and Energy Project at Stanford University.

There are two upcoming initiatives on the issue of climate change that could have major implications for companies doing business internationally: one, agreement on a post-2012 international framework in Copenhagen later this year, and the other, cap-and-trade legislation, which the U.S. Senate may consider this fall. What are your thoughts on each?

The pending Copenhagen discussions have set ambitious goals. These involve extension of the Kyoto Protocol beyond 2012 as well as efforts to engage developing countries in actions to limit emissions and adapt to climate change. A key element of the international debate is how financial aid and technology transfer from developed countries will support actions by the developing world. New approaches to deliver offset credits, especially from protection and expansion of forests, are also under discussion. Offset credits allow emission reductions in developing countries to be used to satisfy require-

carbon tax for emissions reduction

"A well-designed carbon tax could play a significant role in addressing the challenge of rising emissions in the United States."

ments for reducing emissions in developed countries.

Given the global nature of the climate change challenge, and since developing countries will account for a significant portion of emission increases, progress globally on emissions reductions is essential. At the same time, U.S. policy makers must seek a domestic policy that does not place the United States at an economic disadvantage with respect to other nations.

The cap-and-trade bill, passed earlier this year by the U.S. House of Representatives, is one of the most complex pieces of legislation ever considered by Congress. Its provisions would affect every aspect of the economy from energy and transport to trade and agriculture. We believe that the bill is deeply flawed and would result in unnecessary damage to the U.S. economy. It will increase volatility in energy prices and add unnecessary burdens to average families. It is not the right approach to address the risks of rising greenhouse gas emissions.

It's been said that the cap-and-trade bill that recently passed in the U.S. House of Representatives will create a kind of "Wall Street" of emissions traders. Is that true?

It is. In fact, that's one of the objections we have with the bill – with its emphasis on trading, it takes the focus away from the goal of reducing greenhouse gas emissions.

For example, we know from experience that cap-and-trade programs inherently increase price volatility. This volatility leads to unpredictability, which increases business risk and discourages the type of investments needed in new technology that will be required to reduce emissions. These risks ultimately undermine the long-term objective and effectiveness of such a program.

The House bill protects certain industries from the costs of cap and trade, artificially creating "winners and losers" that could result in the loss of American jobs. The National Black Chamber of Commerce recently released a study that stated the bill could result in as many as 1.5 million jobs lost per year by 2015 and more than 2 million jobs lost per year by 2030. Furthermore, it transfers U.S. money overseas – $40 billion to $60 billion a year, according to the same study.

There are other unfortunate aspects of the legislation that have a particular impact on our industry. It unfairly targets domestic refining, which will increase reliance on petroleum imports and reduce national energy security. The bill also provides emissions permits for older, higher-emitting coal-fired plants, while not adequately recognizing the greenhouse-gas reduction benefits of readily available natural gas.

Is there a better approach? What policy does ExxonMobil support?

ExxonMobil agrees with many of the world's leading economists and commentators that a revenue-neutral carbon tax or greenhouse gas emissions fee would be a much simpler, more transparent and more cost-effective approach. It would create a uniform and predictable cost on greenhouse gas emissions across our economy, and it more easily lends itself to global application. A carbon tax is much more efficient administratively since it can be largely built upon the existing tax infrastructure.

Considering the recent economic difficulties, it's important to point out that a carbon tax avoids the complexity and the opportunities for manipulation inherent in building a large, new commodity market. Trading of carbon allowances, directly and through complex derivatives, will unnecessarily raise the costs of energy and contribute to the volatility of energy prices throughout the economy.

Finally, making the carbon tax "revenue neutral" means that it cannot merely be used to increase government income. Instead, money from a revenue-neutral carbon tax would be returned or recycled to the economy through reductions in other taxes such as those on labor or capital. There are also proponents of a carbon tax that advocate returning the revenues directly to consumers through a 'dividend' process. Making a carbon tax revenue neutral provides a way to help reduce the burden of emission reductions on the average family.

Critics of a carbon tax argue it merely provides cost certainty and does not provide certainty in the amount of reductions of greenhouse gas emissions. In fact, the initial tax rate trajectory could be set based on the best current understanding of what is necessary to reduce emissions along a desired path. This tax rate trajectory could then be updated periodically based on actual performance versus the emissions goals established by policy makers.

Combined with additional advances in energy efficiency and new technologies driven by free-market innovation, a well-designed, revenue-neutral carbon tax could play a significant role in addressing the challenge of rising emissions in the United States. theLamp

Panorama

▸Around the world with ExxonMobil

ExxonMobil's Lorie Jackson (at right) accepts the 2009 Corporate Peacemaker Award on behalf of the company at the Seeds of Peace benefit dinner.

Corporation receives peacemaker award

ExxonMobil received the 2009 Corporate Peacemaker Award at the Seeds of Peace benefit dinner May 27 in New York City.

Seeds of Peace is dedicated to empowering young leaders from regions of conflict with the leadership skills required to advance reconciliation and coexistence.

"The work of Seeds of Peace is fundamental to generating much-needed hope in regions of conflict and translating that hope into action," says Ken Cohen, ExxonMobil's vice president of public affairs. "Through our alliance with this organization, we hope to equip young people with the skills necessary to advance to leadership positions in government, institutions of higher learning, nonprofit organizations and the private sector."

Under the Educating Women and Girls Initiative, ExxonMobil currently supports Seeds of Peace and the Center for Development and Population Activities in a program called the Women's Leadership for Greater Economic Participation. Lorie Jackson, manager of the Educating Women and Girls Initiative, received the award on behalf of the company, which honored ExxonMobil's commitment to improving access to education, economic opportunities and social development worldwide.

Support for strategic and international studies

ExxonMobil has donated $5 million to strengthen and grow the Center for Strategic & International Studies' (CSIS) new Global Health Policy Center, and provide space in its new building to house its global health program.

"With these funds, ExxonMobil will help the Center strengthen its policy agenda for global health, especially with regard to malaria, and widen the circle of advocacy to security and foreign policy leaders in the United States government and in international institutions," says John Hamre, CSIS president and chief executive officer.

"At ExxonMobil we know firsthand the devastating impact that diseases like malaria are having on the communities where we operate," says ExxonMobil Chairman and CEO Rex W. Tillerson, a CSIS trustee.

"It is one of the reasons why we established our Africa Health Initiative more than 10 years ago and why we support programs targeted to worldwide health issues. We believe that the establishment of the Global Health Policy Center will be another important step enabling us to find innovative solutions to some of the world's most pressing public health issues," Tillerson notes.

Designed to bridge the foreign policy and public health communities, the Global Health Policy Center will:

- Define a long-term strategic plan for expanded U.S. engagement in global public health;
- Cultivate new high-level American champions and create new mechanisms to better inform policymakers of important health discoveries;
- Address the growing security dimensions to global public health; and
- Build external support – from within Africa, Europe, China, Russia, India, the Middle East and the Americas – for a strategic approach and for improving the governance of global health.

U.S. Production recognized for excellence

The United States Interior Department's Minerals Management Service (MMS) has awarded Hoover Diana its 2008 MMS Gulf of Mexico Region's Lake Jackson District Safety Award for Excellence (SAFE) in the high-production category. The award recognizes companies that train and motivate employees to conduct offshore operations in a safe and environmentally sound manner, adhering to all regulatory requirements.

ExxonMobil was also named a national finalist for the 2009 SAFE award in the Outer Continental Shelf high-activity category. The honor commends the company's safety and environmental performance at its facilities in the Gulf of Mexico; Mobile Bay, Alabama; and the Santa Ynez Unit offshore Southern California.

"We are proud to receive this recognition for outstanding performance from the MMS," says Gary Walz, U.S. Production operations manager for the Gulf of Mexico and inland Louisiana. "This honor publicly acknowledges the exceptional quality of our team and our collective effort to continuously improve performance."

Singapore projects win safety award

In July, the Singapore government recognized two ExxonMobil projects for workplace safety.

One of the winning projects in Singapore added 130,000 tons a year of capacity to the hydrocarbon fluids (HCF) plant to meet increased regional demand. The second project, in-refining facilities (IRF), supports the ongoing Singapore parallel train project. Both projects, at ExxonMobil's largest integrated manufacturing site in Asia, were presented with the Safety and Health Award Recognition for Projects by the Manpower Ministry and Workplace Safety and Health Council. The award acknowledges projects that have achieved strong safety performances through the development and use of effective management systems.

The HCF project was completed in August 2008. The IRF project is scheduled for completion by the end of next year.

Photo: Business Wire

Howard University hosted more than 150 middle schoolers as part of the ExxonMobil Bernard Harris Summer Science Camp held in July.

Empowering future scientists and engineers

Instead of video games and skateboards this summer, middle school students from three Washington, D.C.-area universities – Bowie State, Howard University and the University of Virginia – created their own fun at a special event held during a two-week summer science camp adventure on the campus of Howard University.

With topics of discovery such as a mission to Mars, robotics, energy and the environment, the free camps are designed to spur the imagination of today's students and encourage them to pursue careers in math and science.

As a component of the ExxonMobil Bernard Harris Summer Science Camp, Howard University campers were joined by others from Bowie State University and the University of Virginia, all of whom worked with engineers as part of their educational experience.

This is the fourth year that former NASA astronaut Dr. Bernard Harris and ExxonMobil have partnered to provide these academic enrichment camps on university campuses.

ExxonMobil is participating in a program in Rwanda to make more bicycles available to local health workers in the fight against malaria.

Supporting Rwanda malaria outreach

ExxonMobil, in partnership with Malaria No More and Project Rwanda, has initiated a Bikes for Rukara project in Rwanda.

The program will provide bicycles to community health workers at the Rukara Health Facility, a faith-based operation in partnership with the government of Rwanda, to help reach more families with their life-saving malaria prevention programs. Bikes for Rukara is part of ExxonMobil's commitment to supporting organizations working to combat malaria.

Dr. Steven Phillips, ExxonMobil's medical director for global health issues, says, "We are proud to be supporting the Rukara Health Facility, whose efforts have demonstrated the effectiveness of malaria prevention and treatment programs. These bicycles will increase the health workers' abilities to significantly broaden community outreach and impact."

Panorama

Community summer jobs

Fine Arts Chamber Players and Tulane University student Tobin Fulton were honored during an awards ceremony and dinner to mark the conclusion of the 19th year of the ExxonMobil Community Summer Jobs Program. Along with their awards for Agency of the Year and Intern of the Year, Fine Arts Chamber Players and Fulton each received a check for $1,000.

"It is always a pleasure to honor the deserving recipients of these awards," says ExxonMobil's Robert Lanyon, manager, corporate citizenship and community investments. "Fine Arts Chamber Players and Tobin Fulton represent the culmination of a summer of hard work and passion, and we are proud to support their continued efforts in our community."

Since the program began in 1971 in New York City, ExxonMobil has provided more than $9.3 million to support 4,300 community summer job internships. Today it is active in 10 states, including Alabama, Alaska, California, Kansas, Louisiana, Montana, Oklahoma, Texas, Virginia and Wyoming.

Photo: Business Wire

ExxonMobil's Truman Bell (right) and Millicent Boykin, Volunteer Center of North Texas, present the Intern of the Year award to Tobin Fulton, a Tulane University student.

Company launches new advertising

ExxonMobil has launched a new television advertisement following the recent announcement of its plans to research and develop next-generation biofuels from photosynthetic algae. The 30-second ad features Joe Weissman, a scientist with ExxonMobil Research and Engineering Company. It began airing in the United States on July 27.

The company also published an algae biofuels op-ed in July 30 editions of *The New York Times*, *The Washington Post*, *USA Today* and other Washington, D.C.-based publications, in addition to select state newspapers and international publications.

Refineries and chemical plants upgraded

Approximately one-third of ExxonMobil's refineries and large chemical plants worldwide are upgrading the technologies controlling major and minor processing units.

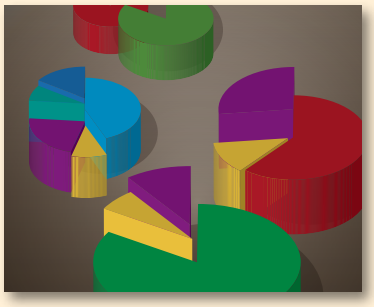
This global conversion builds on ExxonMobil's long-standing relationship with Honeywell and deploys Honeywell's new *Experion* platform. Upgrades include a new blending and oil movement automation technology that enhances the efficiency in formulating refined products.

While improving operational efficiencies and lowering maintenance costs, these systems also enhance control room decision-making to further improve reliability and profitability. With the first startup completed in Sarnia, Canada, in 2006, ExxonMobil now has 68 of the new systems operating worldwide.

Recognized as a significant step forward in process control, these multiphase conversion projects are scheduled for completion by 2015.

the Lamp

The Lamp is published for ExxonMobil shareholders. Others may receive it on request. It is produced by the Public Affairs Department, Exxon Mobil Corporation.



ExxonMobil quarterly financial summary

Second-quarter earnings

ExxonMobil's second-quarter earnings were $3,950 million, down 66 percent from the second quarter of 2008, resulting, in large part, from the volatility of commodity prices and reduced product demand. Earnings per share of $0.81 were down 64 percent. Earnings for the second quarter of 2009 and 2008 included special charges of $140 million and $290 million, respectively, related to Valdez litigation. Capital and exploration project spending was $6.6 billion in the second quarter, down 6 percent from last year.

Upstream earnings were $3,812 million, down $6,200 million from the second quarter of 2008. Lower crude oil and natural gas realizations accounted for the decline, reducing earnings approximately $6.1 billion.

On an oil-equivalent basis, production decreased about 3 percent from the second quarter of 2008.

Downstream earnings of $512 million were down $1,046 million from the second quarter of 2008. Lower margins drove the decline, reducing earnings approximately $1 billion, as weaker refining margins more than offset stronger marketing margins. Petroleum product sales of 6,487 kbd (thousands of barrels a day) were 288 kbd lower than last year's second quarter, primarily reflecting asset sales and lower demand.

Chemical earnings of $367 million were $320 million lower than in the second quarter of 2008, attributable mainly to lower volumes and weaker margins.

ExxonMobil declared a cash dividend of 42 cents per share (the same as in the second quarter of 2009) on the Common Stock, payable on September 10, 2009, to shareholders of record of Common Stock at the close of business on August 13, 2009.

Millions of dollars, except per-share amounts	Second Quarter 2009	Second Quarter 2008	First Half 2009	First Half 2008
Functional earnings				
Upstream	$ 3,812	$ 10,012	$ 7,315	$ 18,797
Downstream	512	1,558	1,645	2,724
Chemical	367	687	717	1,715
Corporate and financing	(741)	(577)	(1,177)	(666)
Total earnings (U.S. GAAP)	$ 3,950	$ 11,680	$ 8,500	$ 22,570
Earnings per common share – assuming dilution	$ 0.81	$ 2.22	$ 1.73	$ 4.24
Special items	$ (140)	$ (290)	$ (140)	$ (290)
Earnings excluding special items	$ 4,090	$ 11,970	$ 8,640	$ 22,860
Other financial data				
Total revenues and other income	$ 74,457	$138,072	$138,485	$254,926
Income taxes and other taxes	$ 18,911	$ 32,361	$ 36,554	$ 61,702
Capital and exploration expenditures	$ 6,562	$ 6,970	$ 12,336	$ 12,461
Dividends on common stock	$ 2,039	$ 2,098	$ 4,020	$ 3,977
Dividends per common share	$ 0.42	$ 0.40	$ 0.82	$ 0.75
Thousands of barrels daily, except for natural gas and chemical				
Operating data				
Net production of crude oil and natural gas liquids	2,347	2,391	2,411	2,430
Natural gas production available for sale (millions of cubic feet daily)	8,013	8,489	9,094	9,359
Oil-equivalent production (6 million cubic feet = 1 thousand barrels)	3,682	3,806	3,927	3,990
Refinery throughput	5,290	5,472	5,335	5,499
Petroleum product sales	6,487	6,775	6,461	6,798
Chemical prime product sales (thousands of metric tons)	6,267	6,718	11,794	13,296

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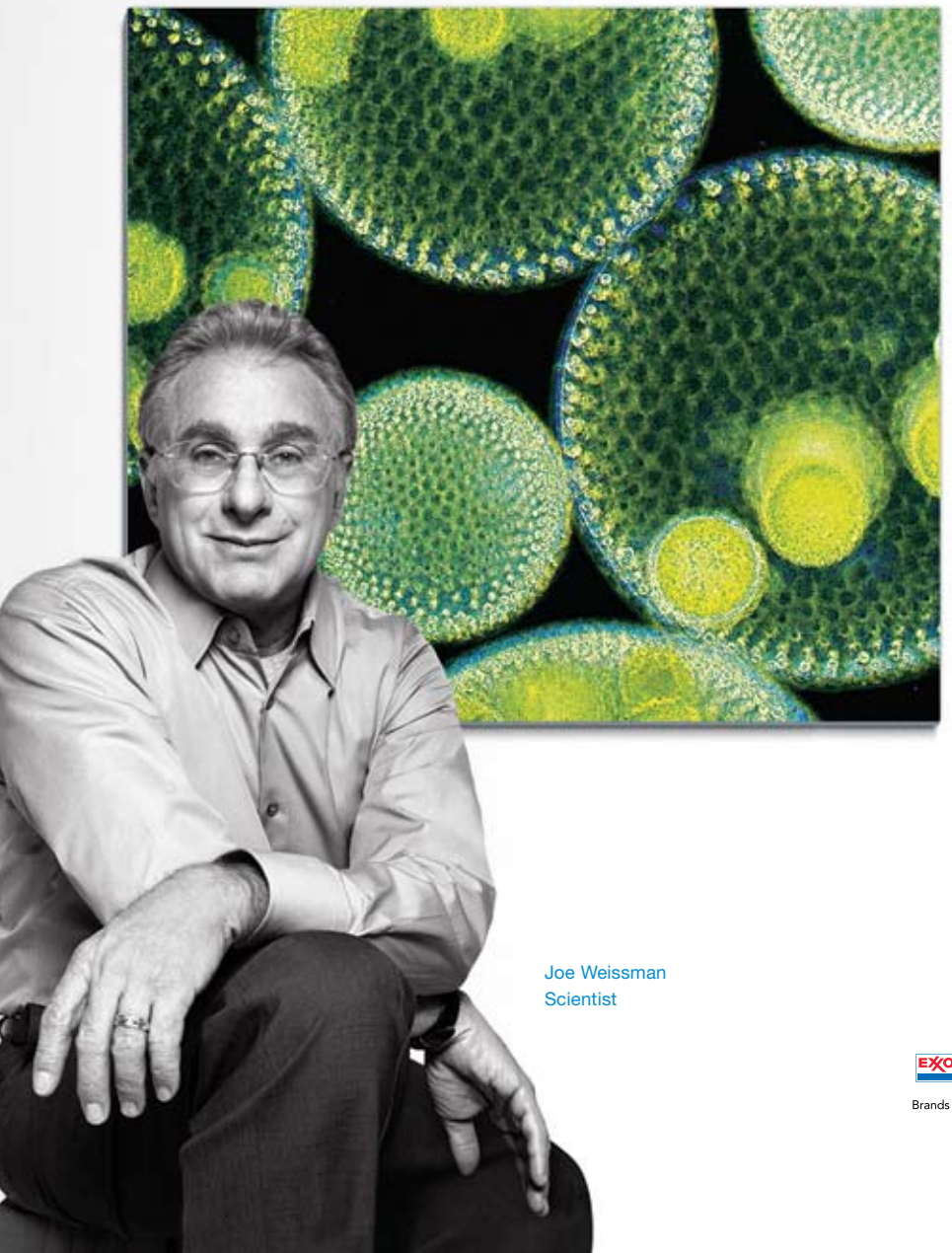

Joe Weissman
Scientist

Algae-powered cars: Science fiction or science?

Say algae, and most people think of those unpleasant green organisms found in swimming pools and fish tanks. But to the scientists and engineers of ExxonMobil, algae conjure something far more appealing: Opportunity. Why? Because algae can create renewable energy while absorbing CO_2.

The energy from algae might someday produce biofuels that are compatible with those made from conventional crude oil. That's why ExxonMobil is committed to a major long-term research and development program aimed at developing algae as a viable fuel source. Unlike other biofuel sources such as corn and sugar cane, algae do not compete with our food supply. And because they consume CO_2, algae could help reduce greenhouse gases.

ExxonMobil is partnering with Synthetic Genomics Inc., pioneers in biotechnology, on this groundbreaking research effort. Our goal is to produce biofuels from algae in the future to supplement the fuels we use in our vehicles today, while reducing greenhouse gas emissions. Algae have never looked so inviting.

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